

COUNTRY ANALYSIS BRIEFS

Malaysia

Last Updated: September 2009

Background

Malaysia is a significant net exporter of oil and the second largest exporter of liquefied natural gas (LNG) in the world behind Qatar

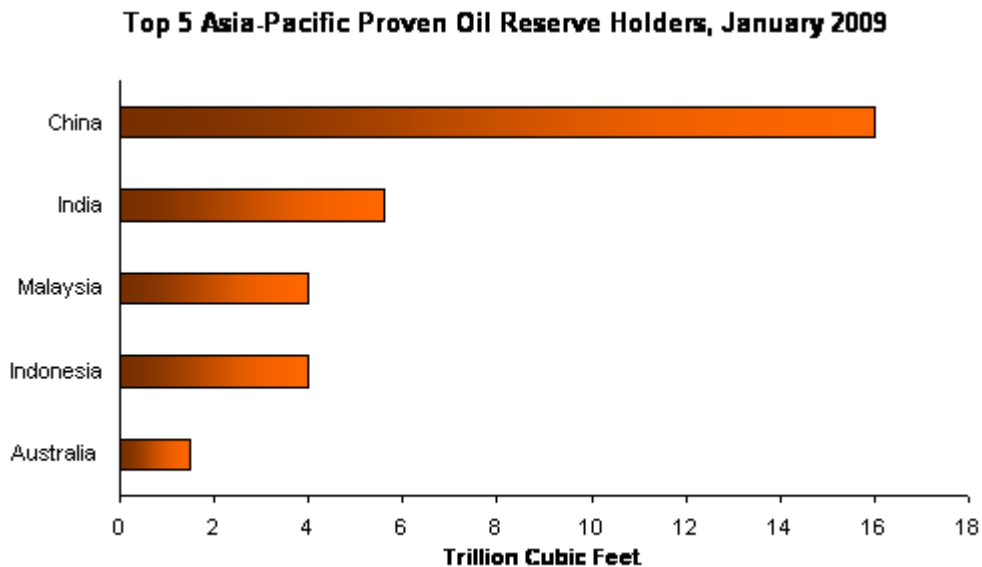
Although Malaysia's oil fields are maturing, new offshore developments of both oil and gas are expected to increase aggregate production capacity in the near- to mid-term. Malaysia's western coast runs alongside the Strait of Malacca, an important route for seaborne energy trade that links the Indian and Pacific Oceans.



Oil

Malaysia's oil reserves are the third highest in the Asia-Pacific region

According to the *Oil & Gas Journal (OGJ)*, Malaysia held proven oil reserves of 4 billion barrels as of January 2009. Nearly all of Malaysia's oil comes from offshore fields. The continental shelf is divided into 3 producing basins: the Malay basin in the west and the Sarawak and Sabah basins in the east. Most of the country's oil reserves are located in the Malay basin and tend to be of high quality. Malaysia's benchmark crude oil, Tapis Blend, is very light and sweet with an API gravity of 44° and sulfur content of 0.08 percent by weight. More than half of total Malaysian oil production comes from the Tapis field.



Source: *Oil and Gas Journal*

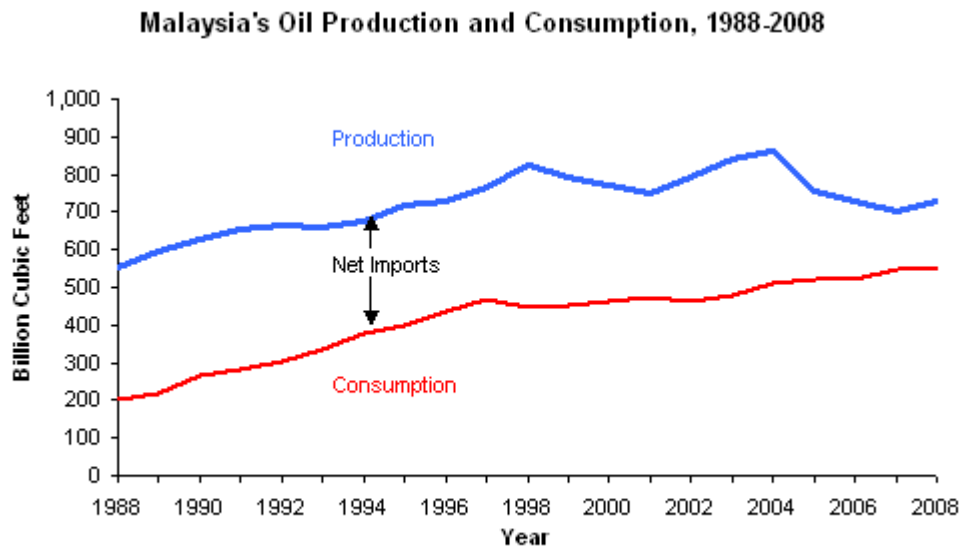
Sector Organization

Malaysia's national oil company, Petroleam Nasional Berhad (Petronas), dominates upstream and downstream activities in the country's oil sector. Petronas is the only remaining wholly state-owned enterprise in Malaysia and is the single largest contributor of government revenues. Petronas holds exclusive ownership rights to all exploration and production projects in Malaysia, and all foreign and private companies must operate through production sharing contracts (PSCs) with Petronas. ExxonMobil (through its local subsidiary Esso Production Malaysia Inc.) is the largest foreign oil company by production volume, and there are numerous other foreign companies operating in Malaysia via PSCs, including Shell, Chevron, and BP.

All energy policy in Malaysia is crafted and overseen by the Economic Planning Unit (EPU) and the Implementation and Coordination Unit (ICU), which report directly to the Prime Minister. The Ministry of Energy, Water, and Communications regulates the hydrocarbon and electricity sectors, although it does not have policymaking powers.

Exploration and Production

Total oil production in 2008 was 727,000 barrels per day (bbl/d). During 2008, Malaysia consumed an estimated 547,000 bbl/d, and had net exports of about 180,000 bbl/d. Petronas and its various PSC partners are most active exploring offshore areas. Since 2002, the focus has been on deepwater fields on the eastern continental shelf that pose high operating costs and require substantial technical expertise. Petronas announced in January 2009 that 7 new oil fields had come online in 2008, making for a total of 68 producing oil fields.



Source: EIA

New oil production projects in the planning or construction phase include:

The Gumusat/Kakap project, located offshore Sabah in 3,937 feet of deep water, will include the regions' first deepwater floating production system with processing capacity of 150,000 bbl/d. from 19 subsea wells. The system will be connected via pipelines to a new oil and gas terminal to be built in Kimanis, Sabah. In March 2009, it was reported that the engineering contract was awarded and that the offshore installation will begin in 2010. Shell is the operator, holding 33 percent interest; ConocoPhillips also holds 33 percent interest, Petronas has 20 percent and Murphy Oil has 14 percent.

Shell is also the operator at the Malikai oil field with 35 percent interest, in partnership with ConocoPhillips at 35 percent and Petronas with 30 percent. The field was discovered in 2004 at 1,854 feet subsea offshore Sabah. In August 2009 Shell invited bids for engineering and design services. Malakai is expected to come online in 2012 with production of up to 150,000 bbl/d.

In March 2009, the North Fields development, located offshore Malaysia near Vietnam, reportedly began producing oil. The North Field is expected to produce between 40,000 and 50,000 bbl/d by early 2010. Talisman Energy (Canada), the operator, has plans to drill 16 development wells in 2009 and another 13 in 2010.

Brunei and Malaysia signed an agreement in March 2009 to settle their maritime territorial dispute that has prevented exploration of the rich offshore oil reserves off Borneo for the past 6 years. Both countries are expected to cooperate on the development of the sites but no timeframe was given.

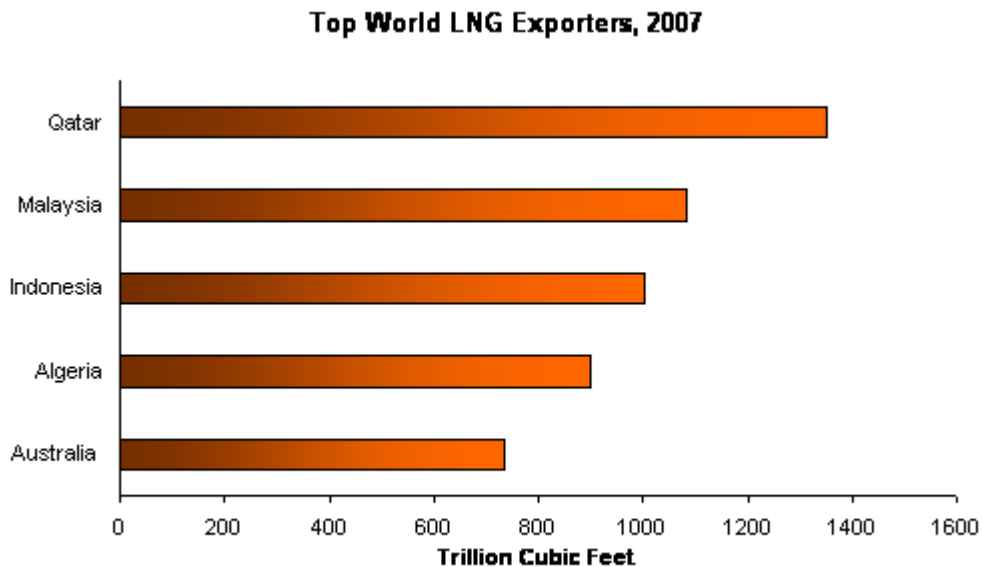
Downstream Activities

According to OGI, Malaysia had about 515,000 bbl/d of refining capacity at six facilities as of January 2009. Petronas operates three refineries (259,000 bbl/d total capacity), while Shell operates two plants (170,000 bbl/d total capacity), and ExxonMobil operates one (86,000 bbl/d). Malaysia invested heavily in refining activities during the last two decades, and is now able to meet most of the country's demand for petroleum products domestically, after relying on the refining industry in Singapore for many years.

Natural Gas

According to OGI, Malaysia held 83 trillion cubic feet (Tcf) of proven natural gas reserves as of January 2009. While much of the country's oil reserves are found off Peninsular Malaysia, much of the country's natural gas production comes from Eastern Malaysia, offshore Sarawak and Sabah.

Malaysia is the world's eighth largest holder of natural gas reserves and was the second largest exporter of liquefied natural gas after Qatar in 2007



Source: EIA

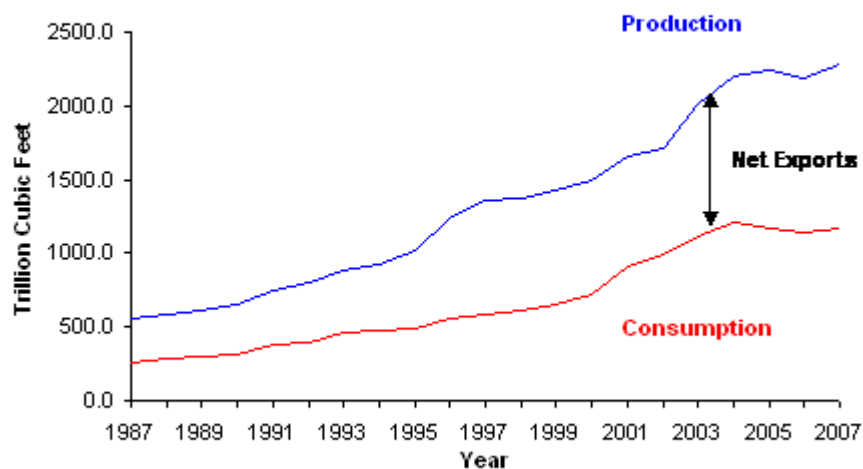
Sector Organization

As in the oil sector, Malaysia's state-owned Petronas dominates the natural gas sector. The company has a monopoly on all upstream natural gas developments, and also plays a leading role in downstream activities and LNG trade. Most natural gas production occurs from PSCs operated by foreign companies in conjunction with Petronas.

Exploration and Production

Natural gas production has been rising steadily, reaching 2.3 Tcf in 2007, while domestic natural gas consumption has also increased steadily, reaching 1.2 Tcf in 2007. There are several important ongoing projects that are expected to expand natural gas production in Malaysia over the near term. E&P activities in Malaysia continue to focus on offshore areas, especially deepwater blocks.

**Malaysian Natural Gas Production and Consumption,
1987-2007**



Source: EIA

Malaysia-Thailand Joint Development Area

One of the most active areas for natural gas exploration and production is the Malaysia-Thailand Joint Development Area (JDA), located in the lower part of the Gulf of Thailand. The area is divided into three blocks, Block A-18, Block B-17, and Block C-19, and is administered by the

Malaysia-Thailand Joint Authority (MTJA), with each country owning 50 percent of the JDA's hydrocarbon resources ([map of the JDA](#)). The JDA reportedly holds 9.5 Tcf of proved plus probable natural gas reserves. The Carigali-Triton Operating Company (CTOC), a joint venture between Petronas Carigali and Hess, operates Block A-18, while Blocks B-17 and C-19 are operated by the Carigali-PTTEP Operating Company (CPOC), a joint venture of each country's national oil company.

Pipelines

Malaysia has one of the most extensive natural gas pipeline networks in Asia. The Peninsular Gas Utilization (PGU) project, completed in 1998, expanded the natural gas transmission infrastructure on Peninsular Malaysia. The PGU system spans more than 880 miles and has the capacity to transport 2 billion cubic feet per day (Bcf/d) of natural gas. Pipelines now connect Malaysia with Singapore and Indonesia, and the Trans-Thailand-Malaysia Gas Pipeline System allows Malaysia to pipe natural gas from the Malaysia-Thailand JDA to its domestic pipeline system. This linkage marks a significant step toward the realization of the proposed "Trans-ASEAN Gas Pipeline" (TAGP) system, a transnational pipeline network linking the major natural gas producers and consumers in Southeast Asia. Because of Malaysia's extensive natural gas infrastructure and its location, the country is a natural candidate to serve as a hub in the proposed TAGP project.

Petronas is also reportedly planning to build the 310-mile Sabah-Sarawak Gas Pipeline between Kimanis, Sabah and Bintulu, Sarawak to transport gas from Sabah's offshore fields, such as Kota Kinabalu, to Bintulu for liquefaction and export. Some of the gas will be used for downstream projects in Sabah. The pipeline is expected to be completed by March 2011. However, while environmental approval has been received, land acquisition issues are still being finalized.

Exports

Malaysia was the second largest exporter of LNG in the world after Qatar in 2007, exporting over 1 Tcf of LNG, which accounted for 13 percent of total world LNG exports. Japan, South Korea, and Taiwan were the 3 primary purchasers. LNG is primarily transported by Malaysia International Shipping Corporation (MISC), which owns and operates 27 LNG tankers, the single largest LNG tanker fleet in the world by volume of LNG carried. MISC is 62-percent owned by Petronas and also has significant involvement in oil shipping activities.

Petronas owns majority interests in Malaysia's 3 LNG processing plants, all located in a complex at Bintulu, Sarawak (East Malaysia) and supplied by the offshore natural gas fields at Sarawak. The Bintulu facility is the largest LNG complex in the world, with 8 production trains and a total liquefaction capacity of 1.1 Tcf per year. A further increment through debottlenecking is expected by 2010, raising overall capacity by 0.6 Tcf per year. As the main LNG importer in Asia, Japanese financing has been critical to the development of Malaysia's LNG facilities.

Construction began on the Sabah Oil and Gas Terminal (SOGT) in February 2007 and is expected to be completed by January 2010. It will have handling capacity of 300,000 barrels of crude and 1 billion cubic feet of natural gas per day and will primarily serve export markets. The Sabah-Sarawak Gas Pipeline project is part of this development.

Profile

Energy Overview

Proven Oil Reserves (January 1, 2009E)	4 billion barrels
Oil Production (2008E)	727,000 bbl/d, of which 84% was crude oil
Oil Consumption (2008E)	547,000 bbl/d
Crude Oil Distillation Capacity (January 1, 2009E)	514,832 bbl/d
Proven Natural Gas Reserves (January 1, 2009E)	83 trillion cubic feet
Natural Gas Production (2007E)	2.3 trillion cubic feet
Natural Gas Consumption (2007E)	1.2 trillion cubic feet
Recoverable Coal Reserves (2008E)	4.4 million short tons
Coal Production (2007E)	1.1 million short tons
Coal Consumption (2007E)	18.5 million short tons

Electricity Installed Capacity (2006E)	23.3 gigawatts
Electricity Production (2006E)	99.1 billion kilowatt hours
Electricity Consumption (2006E)	96.0 billion kilowatt hours
Total Energy Consumption (2006E)	2.56 quadrillion Btu*, of which Natural Gas (35%), Oil (41%), Coal (15%), Hydroelectricity (2%)
Total Per Capita Energy Consumption ((Million Btu) (2006E)	99.4 million Btu per person
Energy Intensity (2006E)	8,891 Btu per \$2000-PPP**

Environmental Overview

Energy-Related Carbon Dioxide Emissions (2006E)	163.5 million Metric tons, of which Oil (44%), Natural Gas (41%), Coal (15%)
Per-Capita, Energy-Related Carbon Dioxide Emissions ((Metric Tons of Carbon Dioxide) (2006E)	6.7 Metric tons
Carbon Dioxide Intensity (2006E)	0.6 Metric tons per thousand \$2000-PPP**

Oil and Gas Industry

Organization	Malaysia's state-owned Petroleam Nasional Berhad (Petronas) dominates all aspects of the country's oil and natural gas sector.
Major Oil/Gas Ports	Kertih, Johor, Sepangar Bay, Bintulu, Kuching, Melaka, Penang, Port Dickson, Kelang, Kota Kinabalu, Kemaman
Foreign Company Involvement	BP, ConocoPhillips, ExxonMobil (Esso), Hess, Mitsubishi, Murphy Oil, Newfield Exploration, Nippon Oil, Shell, Talisman Energy
Major Oil Fields	Bekok, Bokor, Erb West, Bunga Kekwa, Guntong, Kepong, Kinabalu, Samarang, Seligi, Semangkok, Tapis, Temana, Tiong
Major Natural Gas Fields	Bedong, Bintang, Damar, Jerneh, Laho, Lawit, Noring, Pilog, Resak, Telok, Tujoh
Major Refineries (capacity, bbl/d)(January 1, 2009)	Shell: Port Dickson (125,000), Lutong (45,000); Petronas: Melaka I (92,832), Melaka II (126,000), Kertih (40,000); EssoMalaysia: Port Dickson (86,000)

* The total energy consumption statistic includes petroleum, dry natural gas, coal, net hydro, nuclear, geothermal, solar, wind, wood and waste electric power.

**GDP figures from Global Insight estimates based on purchasing power parity (PPP) exchange rates.

Links

EIA Links

[EIA – Malaysia Country Energy Profile](#)

U.S. Government

[CIA World Factbook - Malaysia](#)

[U.S. State Department Consular Information Sheet - Malaysia](#)

[U.S. Embassy in Malaysia](#)

Foreign Government Agencies

[Department of Statistics Malaysia](#)

[Malaysia-Thailand Joint Authority](#)

[Ministry of Energy, Water, and Communications, Malaysia](#)

[BP Statistical Review](#)

[ExxonMobil Malaysia](#)

[Murphy Oil in Malaysia](#)

[Petroleum Nasional Berhad \(Petronas\)](#)

[Shell in Malaysia](#)

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NewsBase Asia Oil and Gas Monitor
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